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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/584,029	HIRAI, HIDEAKI	
	Examiner	Art Unit	
	Kim-Kwok CHU	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 June 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Drawings Objection

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, in each of Claims 5, 14, 25, and 31, the feature "to store a driving condition" must be shown or the feature canceled from the claims. No new matter should be entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> *The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.*

3. Claims 2, 3, 5-20, 25-36, 38, 39, 41 and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 2, line 6, the feature "lenses is moved along ...." is not clear because there is no lens moving mechanism to support the claimed "optical axis" and "orthogonal" moves. Furthermore, the phrase "to generate spherical aberration" is not clear because the aberration generation device only generates "coma aberration" as claimed in Claim 1.

Similarly, in Claim 3, lines 4 and 5, the phrase "to generate spherical aberration" is not clear because the aberration generation device only generates "coma aberration" as claimed in Claim 1.

Regarding Claim 5, line 3, the phrase "medium with a wavelength λ1" is vague and it should be clarified by --medium with a light beam of wavelength λ1--.

Similarly, in Claim 25, line 4, the phrase "medium with a wavelength λ1" is vague and it should be clarified by --medium with a light beam of wavelength λ1--.

Regarding Claim 5, line 21, the phrase "to store a driving condition" is vague because there is no element or means to provide the driving condition. In other words, in order to operate the aberration generation device, it is not clear how the "driving condition" is obtained.

Similarly, in each of Claims 14, 25 and 31, the phrase "to store a driving condition" is vague because there is no element or means to provide the driving condition. In other words, in order to operate the aberration generation device, it is not clear how the "driving condition" is obtained.

Regarding Claim 14, lines 7 and 9, the phrase "high recording density" and "low recording density" is vague. According to the disclosed specification, the recording density

is restricted to Blue-ray standard. In such case, the claimed "high recording density" and "low recording density" should be limited to Blue-ray disc standard.

Similarly, in Claim 31, the phrase "high recording density" and "low recording density" is vague. According to the disclosed specification, the recording density is restricted to Blue-ray standard. In such case, the claimed "high recording density" and "low recording density" should be limited to Blue-ray disc standard.

The claims not specifically mentioned above are rejected because these claims are dependent on the rejected base claims.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> *A person shall be entitled to a patent unless --*
> *(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

5. Claims 1, 3, 4, 21, 23, 24, 37 and 40 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ootaki et al. (U.S. Patent 6,078,554).

Ootaki teaches an optical pick-up having all of the elements and means as recited in claims 1, 3, 4 and 37. For example, Ootaki teaches the following:

Regarding Claim 1, the optical pick-up to perform recording or reproducing for an optical recording medium (Fig. 1), comprising: a light source 1 configured to emit a light beam, an objective lens 5 (Fig. 1) configured to focus the light beam onto the optical recording medium 6, and an aberration generation device 3 (Fig. 1; LCD panel) provided between the light source 1 and the objective lens 5, configured to generate coma aberration (caused by tilt) for the beam focused by the objective lens 5 (Fig. 1), based on a detected value from a device 9 (Fig. 1; tilt sensor) configured to detect a degree of tilt of the optical recording medium, wherein the tilt is

compensated for by the coma aberration generated by the aberration generation device (Figs. 4A and 4B).

Regarding Claim 3, the aberration generation device has an electrode pattern configured to generate coma aberration and an electrode pattern configured to generate spherical aberration and is a liquid crystal element that sandwiches a liquid crystal layer (Fig. 4B).

Regarding Claim 4, the aberration generation device generates coma aberration in a radial direction of the optical recording medium (Fig. 6).

Regarding Claim 37, an optical information processing apparatus 8/10 (Fig. 1) to perform recording or reproducing of information for an optical recording medium (recording or reproducing operations include aberration compensation).

6. Method claim 21, 23, 24 and 40 are drawn to the method of using the corresponding apparatus claimed in claim 1. Therefore method claims 21, 23, 24 and 40 correspond to apparatus claims 1, 3, 4 and 37 are rejected for the same reason of anticipation as used above.

Allowable Subject Matter

7. Claims 2, 5-20, 25-36, 38, 39, 41 and 42 would be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

8. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claim 2, the prior art of record fails to teach or fairly suggest an optical pick-up having following features:

The aberration generation device is composed of two lenses with refractive powers different from each other and a driving device, at least one of the lenses is moved along a direction of an optical axis to generate spherical aberration, and the other lens is moved along a direction orthogonal to the optical axis to generate coma aberration.

As in claim 5, the prior art of record fails to teach or fairly suggest an optical pick-up having following features:

The optical pick-up to perform recording or reproducing of information for a first optical recording medium with a wavelength λ1, a thickness t1 of a substrate, and a numerical aperture NA1 for use thereof and a second optical recording medium with a wavelength λ1, a thickness t2 (> t1) of a substrate thereof, and a numerical aperture NA2 (< NA1) for use

thereof, comprising:

an aberration generation device configured to generate coma aberration or spherical aberration for a beam focused by an objective lens, a device configured to perform a first control operation comprising a first step of making a quantity of the coma aberration generated by the aberration generation device be a stored and predetermined value when a medium determination device configured to determine which of the first and second optical recording media is set determines that the first optical recording medium is set, a second step of changing a quantity of the spherical aberration generated by the aberration generation device to store a driving condition of the aberration generation device on which condition an amplitude of a recording information signal or a track error signal is maximum, and a third step of performing an operation of recording or reproducing while a quantity of the spherical aberration is added based on the driving condition, and a device configured to perform a second control operation comprising a fourth step of making a quantity of the spherical aberration generated by the aberration generation device be a stored and predetermined value when the medium determination device determines that the second optical recording medium is set, a fifth step of changing a quantity of the coma aberration generated by the aberration

generation device, 25 to store a driving condition of the aberration generation device on which condition an amplitude of a recording information signal or a track error signal is maximum, and a sixth step of performing an operation of recording or reproducing while the quantity of the coma aberration is added based on the driving condition, wherein the aberration generation device is controlled by the device for the first and second control operations.

As in claim 14, the prior art of record fails to teach or fairly suggest an optical pick-up having following features:

The optical pick-up to perform recording or reproducing of information for an optical recording medium in which p layers ($p \geq 2$) each with an information-recording surface are formed in a direction of a thickness thereof of which layers ($p - q$) layer(s) at a front side near an objective lens is/are an information recording layer(s) with high recording density and q layer(s) at a back side away from the objective lens is/are an information recording layer(s) with low recording density, comprising:

an aberration generation device configured to generate coma aberration or spherical aberration for a beam focused by the objective lens, a device configured to perform a first control operation comprising a first step of making a quantity of the

coma aberration generated by the aberration generation device be a stored and predetermined value when recording or reproducing i0 of information is performed for the (p - q) layer(s) of the optical recording medium at the front side near the objective lens, a second step of changing a quantity of the spherical aberration generated by the aberration generation device to store a driving condition of the aberration generation device on which condition an amplitude of a recording information signal or a track error signal is maximum, and a third step of performing an operation of recording or reproducing while a spherical aberration is added based on the driving condition, and a device configured to perform a second control operation comprising a fourth step of making a quantity of the spherical aberration generated by the aberration generation device be a stored and predetermined value when recording or reproducing of information is performed for the q layer(s) of the optical recording medium at the back side away from the objective lens, a fifth step of changing a quantity of the coma aberration generated by the aberration generation device to store a driving condition of the aberration generation device on which condition an amplitude of a recording information signal or a track error signal is maximum, and a sixth step of performing an operation of recording or reproducing while coma aberration is added based

on the driving condition, wherein control of the aberration generation device is performed by the device configured to perform the first and second control operations.

As in claim 25, the prior art of record fails to teach or fairly suggest an optical pick-up having following features:

A method of generating aberration for compensation for an optical pick-up to perform recording or reproducing of information for a first optical recording medium with a wavelength λ1, a thickness tl of a substrate thereof, and a numerical aperture NA1 for use thereof and a second optical recording medium with a wavelength λ1, a thickness t2 (> tl) of a substrate thereof, and a numerical aperture NA2 (NAI) for use thereof, which performs, as a control of an aberration generation device configured to generate coma aberration or spherical aberration for a beam focused by an objective lens, a first control operation comprising a first step of making a quantity of the coma aberration generated by the aberration generation device be a stored and predetermined value when a medium determination device configured to determine which of the first and second optical recording media is set determines that the first optical recording medium is set, a second step of changing a quantity of the spherical aberration generated by the aberration generation device to store a driving condition of the

aberration generation device on which condition an amplitude of a recording information signal or a track error signal is maximum, and a third step of performing an operation of recording or reproducing while a quantity of the spherical aberration is added based on the driving condition, and a second control operation comprising a fourth step of making a quantity of the spherical aberration generated by the aberration generation device be a stored and predetermined value when the medium determination device determines that the second optical recording medium is set, a fifth step of changing a quantity of the coma aberration generated by the aberration generation device, to store a driving condition of the aberration generation device on which condition an amplitude of a recording information signal or a track error signal is maximum, and a sixth step of performing an operation of recording or reproducing while the quantity of the coma aberration is added based on the driving condition.

As in claim 31, the prior art of record fails to teach or fairly suggest an optical pick-up having following features:

A method of generating aberration for compensation for an optical pick-up to perform recording or reproducing of information for an optical recording medium in which p layers ($p \geq 2$) each with an information-recording surface are formed in a

direction of a thickness thereof of which layers (p-q) layer(s) at a front side near an objective lens is/are an information recording layer(s) with high recording density and q layer(s) at a back side away from the objective lens is/are an information recording layer(s) with low recording density, which performs, as a control of an aberration generation device configured to generate coma aberration or spherical aberration for a beam focused by the objective lens, a first control operation comprising a first step of making a quantity of the coma aberration generated by the aberration generation device be a stored and predetermined value when recording or reproducing of information is performed for the (p - q) layer(s) of the optical recording medium at the front side near the objective lens, a second step of changing a quantity of the spherical aberration generated by the aberration generation device to store a driving condition of the aberration generation device on which condition an amplitude of a recording information signal or a track error signal is maximum, and a third step of performing an operation of recording or reproducing while a spherical aberration is added based on the driving condition, and a second control operation comprising a fourth step of making a quantity of the spherical aberration generated by the aberration generation 15 device be a stored and predetermined value when recording or

reproducing of information is performed for the q layer(s) of the optical recording medium at the back side away from the objective lens, a fifth step of changing a quantity of the coma aberration generated by the aberration generation device to store a driving condition of the aberration generation device on which condition an amplitude of a recording information signal or a track-error signal is maximum, and a sixth step of performing an operation of recording or reproducing while coma aberration is added based on the driving condition.

The features indicated above, in combination with the other elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

Related Prior Art

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kim et al. (7,372,794) is pertinent because Kim teaches an aberration compensation means in an optical pickup system.

Shih (6,577,376) is pertinent because Shih teaches an aberration compensation means in an optical pickup system.

Furukawa (6,430,130) is pertinent because Furukawa teaches an aberration compensation means in an optical pickup system.

Koyama et al. (6,418,109) is pertinent because Koyama teaches a dual focus optical system.

Komma (5,446,565) is pertinent because Komma teaches an aberration compensation means in an optical pickup system.

10. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kim CHU whose telephone number is (571) 272-7585 between 9:30 am to 6:00 pm, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington, can be reached on (571) 272-4483.

The fax number for the organization where this application or proceeding is assigned is (571) 273-8300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9191 (toll free).

/Kim-Kwok CHU/
Examiner AU2627
October 25, 2009

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/HOA T NGUYEN/

Supervisory Patent Examiner, Art Unit 2627